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State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

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April 15, 2002

Mr. Jack Savage
Oil Tech, Inc.
5615 North 6300 West
Morgan, Utah 84050

Dear Mr. Savage:

Subject: Division of Water Quality Regulation at Rawhide Mine Site, Uintah County

I have received a copy of the Division of Oil, Gas and Mining's (DOGM) letter to you regarding your Notice of Intent for a small mining operation located in Section 10, T. 9 S., R. 25 E., SLBM. The operation will generate waste rock (spent shale), and DOGM did not have enough information on whether the spent shale would affect ground or surface water.

Waste rock piles are covered under the Utah Ground Water Protection Regulations, UAC R317-6 (enclosed) because in some cases they may affect ground water quality. If the potential for damage to beneficial uses of ground water is high, a mine operator may be required to obtain a ground water discharge permit for waste rock piles. In other cases, where the operator can demonstrate that this potential is low, the facility may qualify for permit-by-rule status under UAC R317-6-6.2A(1).

We currently do not have enough information on the site characteristics and your planned waste rock management to evaluate the potential effects on ground water quality. Information on the following topics, specific to this case, may be useful to determine if this site qualifies for permit-by-rule status:

1. An evaluation of the chemical quality of leachate from the waste rock, using lab methods like EPA Method 1312 (Synthetic Precipitation Leaching Procedure) or other methods approved by DOGM. If you are doing bench-scale testing of ore milling or processing, it would be appropriate to also do these kinds of tests on samples of tailings and unprocessed waste rock.

2. Evaluation of ground water conditions at the site. The chemical quality of the ground water from the uppermost saturated zone under the site would determine the ground water class of the receiving ground water, as defined in R317-6-3. Ground water of higher quality (Class I or II) receives greater protection under the Regulations. Existing ground water quality under

the site can be compared to the chemical quality of leachate from waste rock. Information on the hydrogeologic characteristics of the subsurface beneath the waste rock can be used to determine if leachate would be discharged to better-quality ground water where it may cause unacceptable degradation of ground water quality.

3. Appropriate management of waste rock to prevent ground water contamination. If the chemical quality of leachate is not compatible with the receiving ground water, proper management and disposal can prevent the discharge of contaminants to ground water. In this case, the characteristics of surface piles of waste rock can be evaluated for the area's climate by using the HELP (Hydrologic Evaluation of Landfill Performance) model or similar models, which can estimate the amount of leachate which would be discharged after the waste pile reaches equilibrium with precipitation over time. In many cases, in a dry climate leachate generation can be minimized by appropriate capping and revegetation of the waste piles, and caps can be designed using the model for guidance. For underground disposal, appropriate information should be provided to show that ground water quality will not be affected, either because leachate will not be formed or because leachate chemistry is compatible with the receiving ground water.

Without knowing the site characteristics, ground water chemistry and leachate chemistry, it is not possible to know which types of information, as outlined above, would be appropriate to evaluate any effects on ground water quality which would be caused by waste rock disposal at your site. Please call me at (801) 538-6146 if you have any questions or if you would like to arrange a meeting to determine appropriate information needed to evaluate your site.

Sincerely,

Mark T. Novak

Mark Novak, Environmental Scientist
Ground Water Protection Section

MN:bjr

Enclosure

cc: Paul Baker, DOGM (W/o encl)
Tri-County Health Dept. (W/o encl)

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FILE:OIL TECH, INC.

ADMINISTRATIVE RULES
FOR
GROUND WATER QUALITY PROTECTION

R317-6, UTAH ADMINISTRATIVE CODE

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

EFFECTIVE DATE OF LAST REVISION - JANUARY 22, 2002